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UNCLAS SECTION 01 OF 04 BRASILIA 000672

STATE PASS USTR FOR KDUCKWORTH  
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SUBJECT: SOURCES OF GENERATION - ELECTRICITY SERIES #2

SENSITIVE BUT UNCLASSIFIED--PLEASE PROTECT ACCORDINGLY

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1.(U)SUMMARY: As Brazil enjoys its recent strong pattern of economic growth, many observers question the sustainability of this growth given the poor condition of Brazil's infrastructure. One critical element in supporting future growth will be Brazil's ability to provide a reliable electrical supply. The country is currently heavily dependent on hydroelectricity without much diversification, leading to difficulties in years with light rainfall. Chief of Staff Dilma Rouseff says that by 2020 current resources will be insufficient to meet the demand, while some outside the government caution that problems could arise as early as 2009. Brazil faces many challenges in its ability to ensure sufficient electrical generation capacity, and while there are long term plans to address the deficiency, the current generation capacity remains just barely sufficient. END SUMMARY.

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WHAT IS THE NEED?  
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12. (U) Apart from a slowdown in the 1980s during a period of low or negative economic growth, Brazil's energy consumption has been increasing at a rate higher than the world average. According to the Ministry of Mines and Energy (MME), energy consumption decreased from 332 TW-hour/year (tera - or trillion - watts) in 2000 to 310 through rationing in 2001 and since that time has risen at an average of 5% per year, which is also Brazil's target rate of GDP growth. By 2007, the rate of consumption had risen to 435 TW-hours and is predicted to be 533 TW-hours by 2011. Data from the national electrical system unified operator, ONS, shows that maximum demand for 2007 was 64,000 megawatts (MW) and they predict by 2011 that will rise to 79,000 MW. This compares with an installed capacity of 98,000 MW in 2007 and a predicted 109,000 MW in 2011. However, sector experts note that installed capacity figures can be misleading, particularly since Brazil's capacity is heavily influenced by rainfall levels and actual production frequently falls

short of capacity.

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RELIANT ON HYDRO  
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¶3. (U) According to the World Energy Council (WEC), Brazil has the world's third highest potential capacity for hydroelectricity after China and the U.S., and is the third largest producer of hydro-power after Canada and the U.S. Brazil's dams are located primarily in the heavily populated southeast, but there are smaller dams throughout the country which are linked into the national power grid. The largest dam, Itaipu, is owned jointly with Paraguay with a 50-year contract that is due to expire in 2023. (Note: Paraguayan president-elect Lugo made renegotiating more favorable terms on the Itaipu contract a central part of his campaign platform. The GOB has said they are unwilling to renegotiate the contract, but in the days following the Paraguayan election have indicated a willingness to work on a solution outside of the contract. The Brazilian Congress has been vocal in its opposition to any contract renegotiation in the wake of Lugo's victory. End Note.)

¶4. (SBU) Pricing electricity that is dependent on water levels can be an art not a science, AES Electropaulo CFO Alexandre Innecco explained to Econoff. The national electrical regulatory body, ANEEL, sets an assured energy capacity for each hydro-generation plant based on average river flows. ONS, in turn, controls how much water is dispatched via the various rivers based on reservoir levels, and upstream/downstream activity and determines which generators will produce and how much. Hydroelectric plants can only

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contract electricity up to their assured capacity; however, a plant can conceivably generate less than its contracted energy and would have to purchase electricity either on the bilateral electricity market (where generators can trade excess energy generated above assured capacity) or on the spot market. Innecco explained, however, that contracted hydroelectric generators generally are not authorized to buy on the spot market and face penalties that effectively double the spot price.

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Other Sources of Electricity  
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¶5. (U) Aside from hydroelectricity, other renewables do not play a significant role in Brazil's electrical supply, although there are reports that the new Super Eletrobras may be charged with expanding into these areas. There is significant interest in developing electrical production based on the next generation ethanol, some of which already provides electricity for ethanol factories (septel). As measured by the speed and regularity of prevailing winds, according to the WEC, wind energy is an untapped area with high potential in Brazil, especially in the areas of the Northeast that do not have sufficient water supply for hydroelectric dams. Growth in this area remains constrained for many reasons, including a high tariff on the import of wind generation equipment. The result is that Brazil has one of the world's lowest rates of installed wind capacity, and the growth rate in this area has lagged behind that of other countries.

¶6. (SBU) Nuclear energy makes up a very small part of Brazil's electricity generation - its two nuclear plants in Rio de Janeiro State make up only about 2% of production capacity in the country. Although Brazilian officials, including MME Minister Lobco in a conversation with Ambassador Sobel, have indicated Brazilian interest in taking advantage of Brazil's large uranium reserves to become a yellow cake exporter, in the near term any civil nuclear expansion will be minimal. In the long-term however, Chief of Staff Dilma Rouseff confirmed during Senate questioning on May 6 that the government has long term plans to expand civil nuclear generation even beyond construction of the long-anticipated third reactor. Brazil's long-term desire to increase their civilian nuclear program is in part delayed by the fact that, as World Bank Director Briscoe told Econoff and Ministry of Foreign Relations Director for

Non-renewable Energy Vivian Loss San Martin confirmed, the GOB contracted the building of the third nuclear plant at the time of construction of the two existing ones, leaving a warehouse full of already purchased 1970s equipment that the government must now figure out how to update with its French and German partners in order to move ahead, as they clearly intend to do.

¶7. (U) Brazil's thermo electrical plants run largely on coal, of which Brazil does not have sufficient quantities, and gas, which also requires imported sourcing. Petrobras is installing new liquefied natural gas plants this year to augment thermal capacity (reftel A). Over the medium-term, new sources of natural gas at Tupi and Sugar Loaf (reftel F) will provide a new, domestic source of natural gas for the potential expansion of thermal electric plants.

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Challenges  
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¶8. (SBU) ANEEL General Director Jerson Kelman told Econoff that one of the biggest challenges to Brazil's energy sector is increasing production in an efficient and environmentally friendly way. As APINE president, Luiz Fernando Leone Vianna, also pointed out in a separate conversation echoing Kelman's, the current permitting and licensing system makes the building of hydroelectric dams very challenging due to societal and environmental concerns which perversely makes the more polluting, carbon heavy, non-renewable conventional thermoelectric plants much easier to build. The World

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Bank has recently completed a study which addresses this and other complications in energy licensing in Brazil, making recommendations in an attempt to ease the licensing challenges to electric companies seeking to operate in Brazil.

¶9. (SBU) The independent energy suppliers association, ABRACEEL, believes the governmental role in the concessions process has led to the distortion of the system. ABRACEEL President Paulo Pedrosa told Econoff, that this year's concerns over a possible energy crisis were not due to true generation limitations, but rather a shortage of supply caused by the government's artificial intervention in the system of auctions to keep prices low. He points to government understatement of the actual demand contracted at auction as a way of decreasing the number of contracts for suppliers to vie for. In so doing, interested suppliers bid the price lower in an attempt to gain the contracts. This tactic not only results in lower energy prices for the consumer but lower energy supply for the coming year as well.

¶10. (SBU) Also, as Brazil seeks to diversify its electrical generation base, it must contend with their current lack of other conventional resources such as coal and gas. They must rely on imports and have in the past been caught on the short end of the stick with unreliable regional suppliers. Bolivia for example reneged on their contract with Petrobras, successfully demanding a renegotiating. Bolivia just this year tried to reopen the issue to pursue the GOB to cede part of its gas supply from Bolivia to Argentina, an offer the Lula government firmly declined. Argentina as well has not lived up to its gas contracts and generally fails to supply the level of gas to Brazil that the two sides had negotiated. (Reftels A and B)

¶11. (U) Finally, according to ONS, the current dilemma in management of the electrical system is how to optimize the use of the hydropower available. Having reached the limits of its current capacity, Brazilian electrical regulators must optimize the electrical supply they have available. What percentage of hydroelectric power to reserve for the dry season and to what extent to utilize the stop gap measure of thermoelectric capacity is a perennial puzzle. Since thermo power is much more expensive, ONS tell us they would prefer to minimize its use in favor of hydro. However, failure to predict demand or rainfall correctly may mean insufficient hydropower for the year. This could cause authorities to find themselves on the wrong side of the spot market for coal- and gas-generated thermal electricity - leading to very painful cost

hikes, most likely to affect industry and, therefore, potentially overall GDP growth. Or, in the worst case scenario, authorities could be driven to impose rationing or risk blackouts. On the other hand, trying to compensate early in the season with thermo power, having incorrectly anticipated a shortage of rainfall, may lead to the more economically efficient hydro supply going to waste and electricity costs rising unnecessarily due to the employment of thermal. This juggling act is becoming more precarious as Brazil's thirst for electrical power equals its capacity for generation.

¶12. (SBU)COMMENT: As Brazil looks to continue on its path of strong economic growth, capitalizing on the recent decision by Standard and Poor's to upgrade Brazil's foreign currency sovereign credit rating to investment grade (reftel E), they may find this growth constrained by limits in the electricity sector. The Lula government is searching for ways to expand the generation capacity, presenting areas ripe for possible bilateral and regional cooperation as well as potential U.S. investment. In the meantime, the government finds itself having to do a precarious balancing of limited resources in the electrical sector to avoid rationing and possible blackouts on one hand, or spikes in electrical costs on the other. The nature of the challenge and Brazil's attempts to control it will be the subject of the next cable in this series. END COMMENT.

¶13. (U) This cable was written in conjunction with Sao Paulo and coordinated throughout Mission Brazil.

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CHICOLA